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AUTHOR McGinty, Robert L.
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ABSTRACT

The value of accelerated learning techniques developed by the national organization for Suggestive Accelerated Learning Techniques (SALT) was tested in a study using Administrative Policy students taking the capstone course in the Eastern Washington University School of Business. Educators have linked the brain and how it functions to various pedagogies that maximize learning productivity and shorten the learning curve. The model investigated in this study assumes that learning involves using both sides of the brain working together to identify subject content and relationships. According to researcher Georgi Lozanov, external stimuli activate the human senses and identify the existence of a sort of sixth sense (creativity or intuition). The variables in this whole brain optimal learning model are external and internal stimuli, the physical learning environment, the brain and the person's reactions to the learning environment, and the classroom facilitator and his sense-related aids. A review of pertinent literature is provided. The seven steps of optimal learning are discussed. It is noted that the responsibility for learning lies with the student who must be placed within the appropriate learning environment. The methodology for the study is detailed. Results suggest that the Lozanov method of optimal learning is preferred by students, and that they learn more in this situation. The study shows critical thinking can be learned, though there is no foolproof way to teach students to be creative thinkers. Contains 15 references. (SM)

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ROBERT'S RULES FOR OPTIMAL LEARNING: MODEL DEVELOPMENT, FIELD TESTING, IMPLICATIONS!

Robert L. McGinty, Ph.D.
School of Business
Eastern Washington University

(509) 359-2873

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ROBERT'S RULES FOR OPTIMAL LEARNING: MODEL DEVELOPMENT, FIELD TESTING, IMPLICATIONS!

ABSTRACT

A study using Administrative Policy students taking the capstone course in a School of Business was conducted to test the value of accelerated learning techniques developed by the national organization of S.A.L.T. The specific techniques of relaxation, synchronized music and phrasing, and whole brain learning were employed for treatment with comparisons of students' achievement scores, case analyses, and objective as well as essay test scores used for the measurement of results. The results indicate a marked improvement in student learning, morale and self-confidence when using selected optimal learning techniques. Of special interest to this researcher was the marked enhancement of the students' critical thinking skills, and their grace and clarity of expressing those marvelous thoughts in the form of creative solutions to complex business problems.

ROBERT'S RULES FOR OPTIMAL LEARNING: MODEL DEVELOPMENT, FIELD TESTING, IMPLICATIONS!

Prologue

I was seated near a rocky outcropping of granite boulders speckled with lichen on the tundra near the timberline overlooking a small basin nestled below the majestic splendor of Italian Peak. Far below a tiny jeweled lake seemed to shimmer and sparkle with the lights of a thousand diamonds near the center of a stand of dark forest green Colorado spruce trees. The warmth of the sun on my face, as I leaned back against my daypack, felt pleasant and relaxing. My thoughts flickered from the pristine picture below me to thoughts of elk grazing in some hidden, high country park and back to the classroom and the surrealistic magic of environmental acoustic sounds coming from my Toshiba stereo cassette player as our 60 second vacation to each person's favorite spot came to a close. As a class, we were relaxed, focused on the task at hand, and about to enjoy another experiential group exercise in MGT 426, Administrative Policies.

Introduction and Assumptions

In recent years educators, training specialists in Human Resource Management, psychologists and behavioralists have fashioned theoretical underpinnings linking the brain and how it functions to certain pedagogies that maximize learning productivity, pedagogies that shorten the learning curve. Much of what

has been learned about accelerated learning can be conceptualized using a theoretical learning paradigm where stress and time required to master subject matter is minimized while still covering large amounts of material. In fact, significantly more material can be learned than was thought possible using optimal learning techniques rather than adhering to traditional stand-up lecture approaches where the student is a passive member of the audience.

The present model under investigation assumes that learning involves using both sides of the brain working together to identify subject content and relationships. External stimuli are used to activate the human senses of sight, sound, smell, taste, feel, and to identify the existence of some sort of sixth sense. The notion of a sixth sense may be thought of as intuition or perhaps creativity, where "creativity is more a meditative way of thinking than a blinding flash of inspiration" (Hutzler, 1985).

The variables of this whole brain optimal learning model are external and internal stimuli, the brain and the individuals' reactions to the learning environment, the physical learning environment itself, and the classroom facilitator and his/her materials or sense-related aids such as music, paintings, tone modulation, experiential exercises, and so forth. All of these make up "the learning environment" and impact the learner's perceptions, reflections, deliberations, reactions. Any learning or understanding takes place as a result of, and a reaction to,

the stimuli within the context of the learning environment itself.

Review of the Literature

Optimal learning environments are created using the Lozanov Method--a process applicable across the curriculum K-thru-university levels. Using a broad range of techniques, Georgi Lozanov refined his "Method" in Sofia, Bulgaria at the Suggestology Research Institute during the 1960's. The method is predicated on brain functions that are triggered by externally and internally generated stimuli targeted at the body's senses of sight, sound, smell, touch, and taste. It produces a harmonious working relationship among and between the cognitive and affective domains producing a state of high leverage learning (for example, see Lozanov, 1978; Merritt, 1987; or Schuster & Gritton, 1985).

The method, sometimes referred to as suggestopedia, super-learning, accelerated learning, or optimal learning, is a holistic, global approach that improves student learning effectiveness and efficiency. Some of the latest learning research suggests that brain skills and individualized learning styles affect the way each person learns (for example, see Buzan, 1983, De Bono, 1968; or Ostrander & Schroeder, 1979). The common theme of researchers who have written about their research suggests that every man, woman, and child has an enormous untapped potential to acquire knowledge, develop patterns of

understanding, and to apply that knowledge and understanding in a creative fashion in diverse but useful ways.

As a pioneer in the field of optimal or accelerated learning, Lozanov's approach is described by one of his students as "a most effective, humanitarian approach to learning" (Merritt, 1987). Merritt captures the essence of the Lozanov Method as sort of an evolutionary development experienced by many people who love to teach. In the introduction to her recent book, she writes cogently, stating:

> "The (Lozanov) System is a confirmation to many teachers that what they have been doing all along because 'it felt right,' now has a rationale to it. However, we have all developed certain habits and modes of thinking based on left-brain conditioning that result in a teaching style that directly conflicts with the natural functioning of the brain" (Merritt, 1987).

While some critics voice opinions against Lozanov's method saying it is nothing more than a collection of circus tricks, the tide seems to be turning. Optimal learning is an approach that may include a certain amount of showmanship, colored chalk and relaxation exercises, but it is more than these, although these can enhance learning. It is not a magical process for developing some sort of photographic memory using this or that parlor trick. And, it is very definitely not an approach that seeks to

manipulate nor coerce students to get them to do what the teacher wants. Instead, as Merritt writes,

> "It is about liberating and stimulating the whole personality, providing a climate for health, wholeness and creativity, and integrating all activities so that they become meaningful to the (student). The implementation of Lozanov's educational system requires an understanding of the underlying philosophy of the Method and the psychology of how people learn" (Merritt, 1987).

The Seven Steps of Optimal Learning

The description and discussion of Lozanov's method was drawn from personal experience as this was influenced by a large number of researchers and writers interested in promoting optimal learning. While the interpretations are mine, the credit for developing the techniques and applications are largely due to Stephanie Merritt, Charles Connolly, Tony Buzan, and James Hand--each an active member and participant in S.A.L.T. (The Society for Accelerative Learning and Teaching headquartered in Ames, Iowa on the campus of Iowa State University). The method entails seven steps and is predicated on the belief that "In order for information to be learned effectively, to be stored in long-term memory and to be triggered for conscious use, it must be emotionally charged" (Merritt, 1987).

Optimal learning works because the teacher does extra preparation. S/he is aware of the impact of body language (Pygmalion or Hawthorne effects), facial expressions and other non-verbal behavior. And, s/he is aware of the physical, or hygiene, factors that are part and parcel of the learning environment such as room colors, seating arrangements, noise and other distractors, and posters and bulletin boards that can (but may not) be related to the subject matter on a given day.

The first step of the method involves having the students engage in physical exercise to loosen up the muscles and develop their breathing to insure a healthy supply of oxygen. The exercise actually wakes them up and charges their systems as it stimulates the release of endorphins much like the runner's high experienced by joggers. Any exercise will do and may be in the form of clapping, jumping jacks, or hand dancing. Additionally, the classroom environment is important here-- posters, bulletin boards, flowers or paintings that create a comfort zone where students are relaxed and feel at ease.

The second step consists of some form of relaxation to encourage students to feel at ease and focus on the subject matter or learning activity for that day's lesson. Relaxation techniques to control stress are well known and are evident in the presentations of an increasing number of corporate consultants working with Fortune 500 companies. My favorite relaxation exercise is to allow students to take a 60 second vacation to their favorite spot--similar to that in the prologue

to this article. Or, one might have students or trainees visualize backwards to a time when learning was exciting. Playing tapes of "Wee Sing and Play" children's verses are very effective in creating this mood. Who can forget their own Kindergarten and first grade enthusiasm for learning when they raised their hands to answer a question before the teacher finished asking it?

In the third step, the active phase of optimal learning is introduced. Here, students are given positive reinforcement. They are told, "it will be enjoyable learning today's lesson, you'll be able to apply it in your work," or "today we are going to learn a very exciting technique to appraise the performance of personnel managers by linking what they do to the performance levels of production line workers." The overall method, and especially this step, stresses the importance of how you say something. A positive approach and the use of experimental exercises are very important. We know that 85 percent of the effectiveness of a speech is the delivery while only about 15 percent is attributed to what is said.

The next two steps enable a well prepared teacher to make a positive delivery filled with substance. Thus, form and substance are important components used to maximize student development. Step four is a continuation of the active phase of learning. It is the teacher's positive delivery of information to the students employing a media that involves students as participants using, for example, skits, case presentations,

simulation games, or in-basket exercises. Songs or poems with lyrics and verse written with subject content may be used. Although these are time consuming to develop, the long-term memory recall of students makes it most worthwhile. This active phase could involve a reading or visual display with clusters of information in the form of mind maps related to the day's reading assignment. The brain can absorb information much faster than a speaker can deliver it and certainly faster than a student can take notes. Classical music selected to fit the delivery may be used here, but this is not mandatory.

The fifth step is tied closely to four above. It consists of allowing students to practice what they've learned. Here, the beat of Baroque music helps students maintain a constant pace, helps keep stress levels low, and actually stimulates the brain functions associated with learning. The skits, songs, role playing, and games are a type of Rogerian listening exercise where students tell their peers and themselves what they've learned and how they will use that information. For example, the teacher may wish to have students write a sexual harassment policy or develop an awareness program after the teacher presents the traditional laws, regulations, and the adverse consequences of worker performance when someone is subjected to harassment.

Step six is the passive phase where students reflect on what they have experienced and learned in the class. Baroque music played softly will enhance this part of the learning cycle. It activates memory, relaxes students and blocks out distractions

allowing students to concentrate on what they know. Students may write these reflecticns or details of their learning in a journal to further enhance learning, improve their writing skills and as a visual display of what they know. The reinforcement rewards are enormous and motivating to the student.

The last step in optimal learning is that of testing to determine if students have met the learning objectives. My preference is for self-evaluation and group-testing using essay exams or exercises rather than employing "canned" multiple guess tests. Each teacher is free to test as s/he will. I like to avoid stressing out my students using fear of failing as a motivator and thus I avoid "traditional" tests whenever possible.

All Students to Center Stage

Peter Drucker writes, "Managers (and students aspiring to become managers) had better assume that the skills, knowledges, and tools they will have to master and apply fifteen years hence are going to be different and new...and only they themselves can take responsibility for the necessary learning and relearning, and for directing themselves. (After-all) not a single executive was born effective...all the effective ones had to learn it" (Drucker, 1967). Who then is responsible for student learning?

The responsibility for learning lies with the student! However, s/he, The Star, must be placed within an appropriate learning environment, The Stage, in order to acquire those human attributes associated with successful managers such as critical

thinking, communication skills, leadership, problem solving, directing, delegating, and so forth. Given the learning environment, [illegible]n student, with some gentle prodding, decides what s/he nee[illegible] know and then learns it.[1] As Dr. Gordon T. Moore, Dir[illegible]r of the New Pathway curriculum format of the Harvard Medical School sa[illegible], "The bottom line is very simple. The less yo[illegible] learning facilitator) say, the more students do, and th[illegible]re you say, the less they do. That's been a hard lesson to le[illegible]' (Spokesman-Review, 1986). It is a strong belief of mine that students learn best by becoming physically and mentally involved in the process of learning. One major key to the process is the elimination of stress and tension experienced by many student learners.

Methodology

Schuster and Gritton have refined accelerative learning techniques designed specifically for business administration courses (Schuster & Gritton, 1985). I adopted a rainbow of ideas from them and others, too numerous to list here, who have contributed to the literature dealing with optimal learning to see if I could tap the full potential of all my students. A pilot study was undertaken to answer the question, "will an optimal learning approach using a stratified random sample of senior students majoring in business produce higher levels of

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[1] Here I use the term "gentle prodding" to imply the notion that a faculty member has a dual role: (a) as a mentor, and (b) as an occasional tormentor, but only in the positive sense.

skill, knowledge and ability aquisition than the traditional, stand-up lecture course when using a case presentation approach?"

Business students enrolled in each of two Administrative Policy courses during Fall quarter 1985 were the subjects of this pilot study to test the effects of "optimal learning" techniques on student learning as measured by case analyses, case presentations, class participation, and objective as well as essay test scores, i.e., mid-term and final exams. Teacher evaluations by students were also compared to determine any perceived student differences of the teacher's effectiveness in teaching the two sections of the "capstone" course, a course designed for senior students majoring in business administration.

Each group or class of students had been randomly assigned to their respective sections during the course of normal registration. The control group (N=19) and the experimental or test group (N=16) were all seniors majoring in business administration at Eastern Washington University, an AACSB-accredited School of Business since 1975. All 35 students completed their respective classes.

One class was used as the control group. These students were taught in the traditional manner using lectures, case analysis and group presentations of cases. The other section was deemed the experimental group, the determination being made by a simple coin toss to insure additional randomness. The experimental group of students analyzed and presented cases, and they took the same scheduled mid-term and final exams as did the

control group; however, relaxation exercises, synchronized music and phrasing, journal assignments, mind mapping, vision quests and affirmations, and hand dancing were a part of the daily class routine. Each group of students was told, and occasionally "gently reminded" that the responsibility for learning was theirs. The control class was lectured to while traditional lectures were minimized throughout the quarter with the experimental group.

The first day of class the test group was introduced to what I alternately call the S.A.L.T. method or optimal learning techniques. They were told what they would learn and how I would approach each class day. Each group was told what was expected of them. I established a professor-student psychological contract with each class using course learning objectives listed and explained in the common syllabus and using a list of student expectations developed by all 35 students.

With environmental music playing, Solitudes - "Dawn by a Gentle Stream," I led the experimental group through a visualization-relaxation exercise at the beginning of each class meeting. This became known by each student as his/her 60 second vacation to some favorite spot selected by him/her. I explained how successful they would be and how quickly they would master the strategic management planning process. During this and succeeding classes I also discussed with the students how the brain used patterning to assimilate and store information for retrieval later when the knowledge or information was needed for

them to analyze complex case studies, to resolve problems or to create business opportunities. They were told that business problems are simply a manager's opportunities to enhance the firm's operational effectiveness and the bottom line. Thus, positive thinking was a major theme throughout the quarter. We concentrated on learning the requisite skills, knowledge, and abilities of successful managers rather than focusing solely on the subject matter presented in textbooks. Visual, auditory, and experiential or kinesthetic pedagogies were incorporated on a daily basis to help maximize each student's understanding of the managerial decision-making process. Two critical questions often addressed by researchers in the strategic management and policy area were used to guide students' thinking throughout the quarter, namely, (1) "What has to be considered?", and (2) "Who decides what, under which circumstances, and how do they decide?" While these encompassing questions were not answered specifically, the students soon accepted the responsibility of deciding for themselves what they had to learn in order one day to be able to answer them, a day that would come in the future when they were employed as business managers.

The second and ensuing days began with a relaxation-visualization exercise, sometimes using the Solitude music while at other times I used Daniel Kobialka's "Dream Passage" or environmental music of the ocean, sailboats, meadows or thunderstorms. The students enjoyed the relaxation and the timely playing of "classical" music during select portions of the

class, especially, as we later engaged in process and free style writing, discussions, and case presentations. Our discussions were viewed much like a casual, social conversation between and among friends. Stress normally felt by students, as described by students in their journals, was virtually eliminated midway through the quarter.

Results and Discussion

A quasi-experimental design was used in this pilot study since there were some uncontrolled variables such as class member dedication or motivational levels, student perceptions and patterning styles, time of day that the particular class met, fatigue and so forth that might contribute to affect the dependent variable, i.e., points earned on each of the graded items used to measure student achievement.

These A.N.O.V.A.s and chi-squares were run using SPSS to test each of the following comparisons:

1. Differences between the total scores earned by men and women within each group were tested. No significant differences appeared; however, women received slightly higher total points when compared to the men in their group (See Tables 1 & 2).

TABLE 1

Two-Way Analyses of Variance

Comparing Optimal Learning and Traditional Lecture Pedagogies

By Class Grouping and Sex

	F	Significance of F
SEX	0.482	0.493
GROUP 1	2.360	0.135

Sex had no significant effect on midterm performance with a 49% chance of making a type I error if the null hypothesis is rejected. The groupings had no significant effect with a 13% error possibility if the null is rejected. The points earned at midterm consisted entirely of the midterm examination. The exam materials were taken from the readings, handouts, and textbook.

2. There was a significant difference (at the .004 level) between total points earned by the experimental group as compared with the control group (see table 2). Hence, grouping had a significant impact on points earned for class assignments with less than a half of one percent (.004%) chance of error if the null hypothesis was rejected (Ho = Ho). Membership in the experimental group is statistically significant as a predictor of class participation points earned, mid-term and final exam points earned, and case presentation points earned. In short, the S.A.L.T. method

works! Or, in a more modest sense, it worked during this pilot study.

TABLE 2

Two-Way ANOVA Comparing Optimal Learning And Traditional Lecture Pedagogies by Class Grouping and Sex (Total Qtr. Points)

	F	Significance of F
SEX	0.896	0.351
GROUP	9.363	0.004

Sex had no significant effect on total points received with a 34% chance of a type 1 error if the null hypothesis is rejected. The group had a significant impact on total points earned with less than 1% chance of error if the null hypothesis is rejected. Therefore, the null hypothesis is rejected.

3. The course grades assigned to students at the end of the quarter indicate no significant differences between the experimental and control group, nor were there any differences between men versus women, either within groups or between groups (see table 3). The reason for this was the use of different curves to assign grades based on relative points earned within respective student groups, that is, experimental or control. Students should not be

unduly penalized for being a part of a pilot study testing the use of optimal learning techniques, especially when they are members of the control group.

TABLE 3

Two-Way ANOVA Comparing Optimal Learning
And Traditional Lecture Pedagogies by Class
Grouping and Sex (Numerical Course Grade Points)

	F	Significance of F
SEX	2.746	0.110
GROUPS	1.243	0.276

In both cases of group and sex as having an influence on grade points given to students for the course, the null hypothesis must be accepted. For the group there is a 27.6% chance of error if the null is rejected while there is an 11% chance of error if the null is rejected for sex being a factor influencing grade points.

4. The Department of Management at Eastern Washington University has adopted a two-part student evaluation of teaching effectiveness form using a 1-5 Likert type scale. One part asks students to "Evaluate course subject matter," that is, what you learned. The other asks students to "Evaluate the teaching effectiveness of the instructor." Student responses to each part of the teacher evaluation

forms are significantly different between classes (see Table 4). That is, there is a significant difference between the evaluation of course subject matter for the control and experimental groups. And, there is a significant difference between observed frequencies of both the control and experimental groups for evaluation of teaching effectiveness. Hence, membership in a group is sufficient to use in predicting (1) how much students perceived they learned in the course and (2) how much the students perceived the teacher to be helpful to them during the course. The experimental group gave higher ratings both for material learned and for teaching effectiveness than did the control group.

TABLE 4

Comparing Student Evaluations of Professors:

Experimental vs. Control Group

	C.V.(.05)	x 2
Evaluation of Course Subject Matter	7.81	13.5
Evaluation of Teaching Effectiveness	7.81	24.94

All students enrolled at the beginning of the quarter in each of the two groups completed their respective classes. The small sample sizes, possible teaching bias and my particular lecture style may have impacted the students. However, my teaching evaluations in the past have always

been in the 80th percentile. Teaching both sections while conducting an experiment to evaluate different teaching pedagogies is a difficult situation to keep under control; however, I did work diligently at controlling my classroom presence in both classes on a daily basis. All exams and case materials were blind graded using student ID numbers and mixing the papers prior to grading. Students also helped distribute points for class participation and presentations in a further attempt to control for teacher bias during the experiment.

Recommendations for Further Study

This pilot study suggests that the Lozanov method of optimal learning is preferred by students in the experimental group, that students learned more in the capstone course when this method was employed, and that students were made more aware of the control and responsibility they have over their own learning and development.

As part of teacher evaluation, students are asked to comment about what they liked or did not like about the class. Table 5 contains several students' comments from the experimental group.

TABLE 5

- "Trying new ideas is always exciting and I appreciated the opportunity to participate in your class. The 60 second vacations were an excellent idea in classroom relaxation."
- "I thought your teaching techniques were very good."
- "Excellent group learning techniques..."
- "...your style did encourage creativity and was easier to understand and work with as the quarter went on."
- "The technique of music and relaxation was helpful in relieving stress. Excellent course, subject matter, and teacher."
- "The music and relaxations did seem to reduce my anxiety about the class, it was a self-exploration of myself as to what I can do or could do."
- "All faculty members should be required to use your method."

Additional studies need to be done in a wide variety of courses with different student mixes. Larger groups may not have the same results as the smaller groups making up the control and experimental groups used in this research study. Do larger groups make a difference? (for example, see Seki, 1981). Do demographic characteristics of students impact learning with or without the use of the optimal learning method? These are just a few of the possible studies and questions that should be

addressed in future research efforts.

One thing seems quite clear, Lozanov's method worked for me. It has also worked for a growing number of faculty across the country in various disciplines including statistics, accounting, writing, English, and foreign languages. Stress is too frequently used to motivate students and is a short run approach. Perhaps it is time for those of us involved with training managers to concentrate on the longer time period, a time of life long learning, where the focus is on learning how to learn! Optimal learning is one method of accomplishing this.

Summary and Concluding Remarks

This paper dealt with the Lozanov method and my approach to optimal learning. Relaxation methods using synchronized music and phrasing are used to reduce stress and establish a bonding between teacher and students. The concept of whole brain approaches to teaching and learning help develop creative thinking skills and enhance clarity and grace in expression. Vision quests help students determine both learning and career goals while mind mapping helps establish patterns out of the maze of new ideas and information with which all of us are bombarded in this new age of high-everything technology. The hand dancing and life stories create a learning climate of trust and cooperation among and between students and teachers. Articularia or talking aloud problem solving taps hidden potential of the brain and stimulates the long-term conscious memory much like

brainstorming does. Finally, class discussions and journals provide feedback loops and help each student recognize her/his real self: her/his feelings, thoughts, impressions, skills, knowledge, and abilities. Discussions and journals are also measurements of what students know and what they are willing and able to do.

Regardless of the approach used in setting up a learning environment that addresses critical thinking and other managerial skills, there does not appear to be a foolproof way to teach students to be creative thinkers. What does appear certain to me, however, is that critical thinking can be learned and used to manage businesses and to resolve complex, strategic level, business problems! And, it appears equally clear to me that faculty members can be a valuable catalyst during this learning process if they will be more flexible in the way they approach the learning process. It's time for faculty to stop teaching their disciplines using the traditional passive lecture and time for them to begin thinking critically about the learning process as an active one with the student at center stage. That is, the student is the STAR and the faculty member a combination of supporting actor, director, and producer of optimal learning environments. Perhaps it is time to say to students, "All Stars to Center Stage!", a time to create a stress-free learning environment using optimal learning techniques to bring out the genius that so often lies dormant in the brains of many soon-to-be "maze bright college graduates who cannot think, write, or

act" (Beam, 1985). If students experience internally all their senses, and if educators come to realize the benefits of relaxation, visualizing, and stress reduction in maintaining healthy minds and bodies, then perhaps management education will be more cost effective.

Epilogue

If we can trick the brain into thinking it's having fun, it will perform some pretty amazing feats. Optimal learning techniques do this and much more by eliminating stress, by making learning enjoyable where the focus is on working smarter rather than harder, and by unleashing the hidden potential of the brain.

The next time you speak with a student try and imagine that s/he is actually a loved one--a child, spouse, relative or dear friend. Or, envision them as a rose and inhale their very essence. If you do this, the positive non-verbal messages you send to them will cement your teacher-student relationship resulting in a spirit of cooperation for learning on the part of the student that will truly amaze you.

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